ORD 2886-69

28 APR 1969

MEMORANDUM FOR: [redacted] Chief/EL/ESD/TSSG/NPIC 25X1

SUBJECT: Preliminary Engineering Survey of a Proposed Image Analysis Laboratory

1. At your request the undersigned have conducted a preliminary engineering survey to determine technical feasibility in installing the ORD Image Analysis Laboratory in room 4N806A of [redacted] The results of this 25X1
survey as outlined below indicate some instrument modification and minor room alterations will be required to place the laboratory into operation.

2. The major consideration must be the instrument modification. The system has been designed to operate on-line with an IBM 360 system computer, but because an adequate computer is not convenient to room 4N806A, it is recommended that the computer interface be replaced by a standard magnetic tape deck. The total cost of this modification is estimated to be:

Purchase price of a Honeywell tape and drive	[redacted]	25X1
Design and fabrication of an IDT interface		
Total		

in addition to funds already committed to the program.

3. A second consideration is the building modification required to support the system. [redacted] P.E. of 25X1
[redacted] was consulted in this regard 25X1
and his recommendations are attached. The floor loading capacity of 125 psi is more than adequate for the ORD system (gross weight 3900#) plus image analysis equipment currently in room 4N806A. Additional airconditioning will be required to dissipate the heat generated by the electronics in order for the system to function properly. Additional electrical circuits should be installed to carry the estimated 100 amps drawn by the system.

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The total cost for these building modifications is an estimated [redacted] 25X1

4. An aircompressor is required by the IDT air bearings. The large compressor now in use could be moved with the IDT and reinstalled in a room remote to the clean area, or a smaller unit capable of supplying at least 100 psi at 20 cfm used instead. An illustration of the present pump is attached.

5. The size of the room is adequate to contain the Image Analysis Laboratory together with the Joyce-Loebl microdensitometer and IDIOT system as indicated in the suggested room lay-out attached.

6. This study was conducted to establish the technical feasibility of one possible site out of many for the laboratory and does not imply an official ORD decision on the actual site of installation. The project officer is [redacted] Optics/Office of 25X1
Research and Development, [redacted] 25X1
25X1

[redacted]
EL/ESD/TSSG/NPIC

CONCUR:

[redacted] 25X1

O/ORD

PRELIMINARY INVESTIGATION

Room 4N806A

ARCHITECTURAL — The existing ceiling will have to be cut and patched to accommodate the new mechanical and electrical system components.

ELECTRICAL — The new equipment requires a new 100 amp., 120 volt panel. This will be run from a new circuit breaker attached in the electric closet on the north riser on the fourth floor, and extended over the ceiling to a new panel in the room. There will also be a new 3 KW heater in the mechanical system modifications.

MECHANICAL — The room is presently air conditioned from a double duct, high velocity mixing box supplying approximately 200 cfm to the room thru a 24x24 perforated diffuser thru an absolute filter. The air leaves the space thru a lightproof louver in the door. Access to the mixing box is thru a door in the plaster ceiling. The mixing box is at the end of the branch line serving the area.

The new equipment to be located in the space will increase the air conditioning requirements far beyond the capacity of the existing mixing box or the branch ducts in the vicinity. There is a 12" diameter cold branch duct running above the ceiling of the space that serves only the air shower. The proposed scheme for properly cooling and filtering the air to the space is as follows:

(1) Remove the existing mixing box and associated ductwork and controls including space thermostat.
(2) Install new 1000 cfm variable volume box with 3KW electric reheat coil. Connect inlet to existing 12" diameter cold duct.
(3) Box shall discharge thru flexible duct, plenum, absolute filter, and 24x24 curved adjustable blade ceiling grille to space.
(4) Room temperature shall be controlled by a sensing element located in the center of the supply grille and a controller mounted on the mixing box.
(5) Relief of air from space shall be by means of a transfer duct to exit corridor outside of air shower.

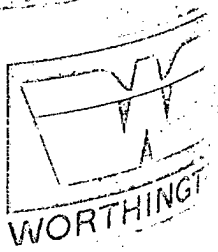
The installation of the new variable volume box will require partial removal and replacement of the plaster ceiling.

COST ESTIMATE

Electrical [ ] Mechanical [ ] Architectural [ ] 25X1

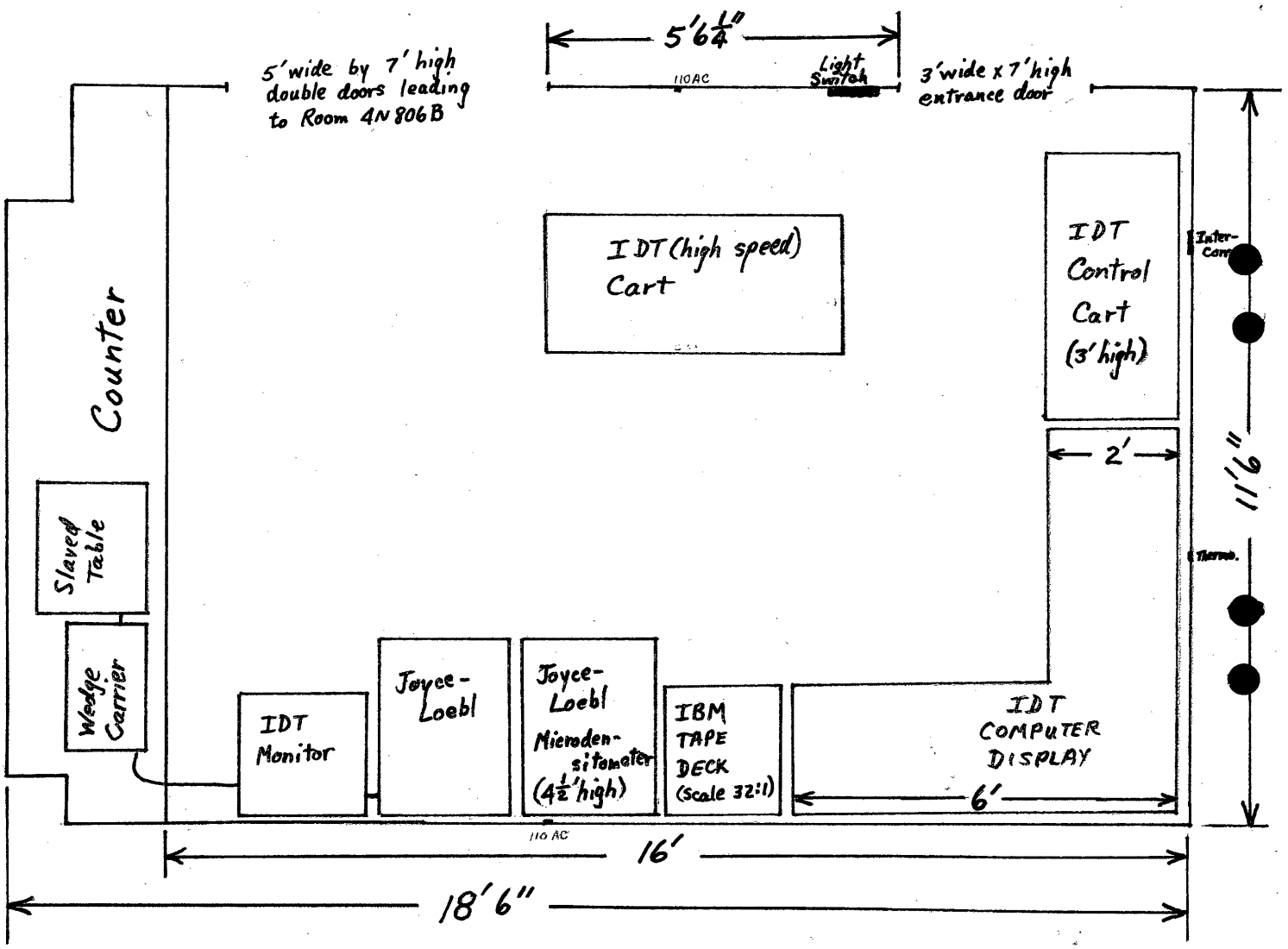
TOTAL = [ ] 25X1

AIR COMPRESSOR



5'6" = 66"

2'8" = 32"



Scale 24:1 (1"=2')